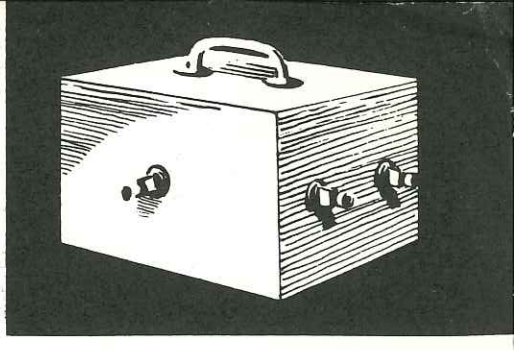
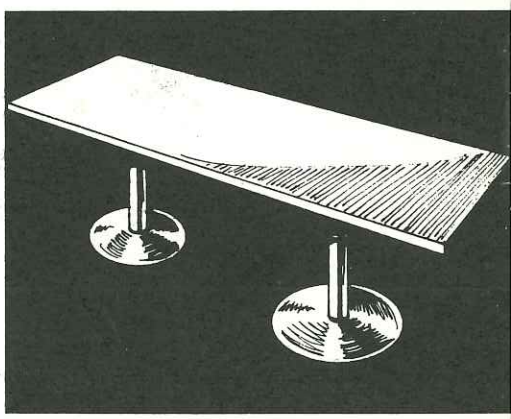
BULLETIN A

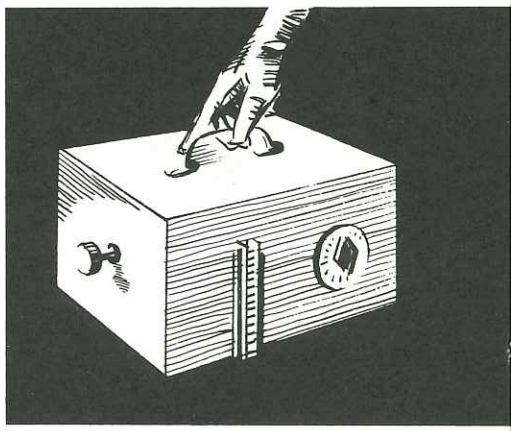
D-57/1E

AIR SAMPLING and MONITORING

in environmentally controlled spaces by membrane filter methods







Controlled Environment
EQUIPMENT CORPORATION
344 SOUTH AVE., WHITMAN, MASS. 02382 Tel: 617-447-4436

All products and services for air sampling and monitoring in environmentally controlled spaces provided by Controlled Environment Equipment Corp. (CEEC) are designed for use in compliance with the following methods:

- Federal Standard No. 209
- Air Force Technical Order T0-00-25-203
- ASTM Tentative Method F25-63T
- SAE Aerospace Recommended Practice ARP 743

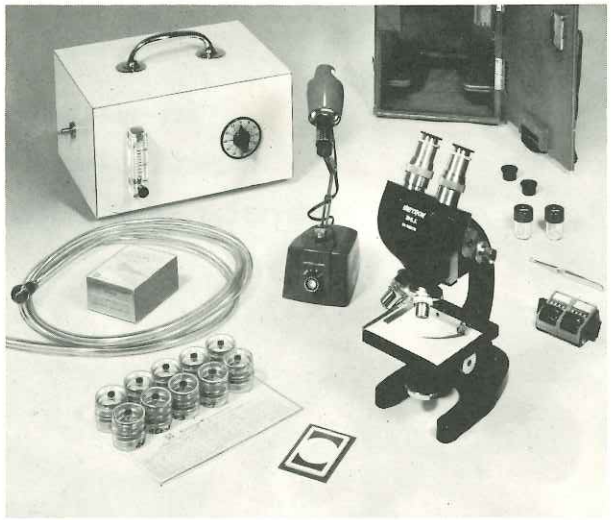
CLEANLINE AIR-SAMPLING KIT

This air-sampling kit consists of all items necessary to perform sampling and counting of particles in accordance with commonly used standards as listed above.

The Cleanline air sampler supplied in this kit has a 10-foot extension hose with adapter. Other details are shown on page 3. The microscope is specifically adapted for use with 47-mm membrane filters.

Other parts of the kit include a light-source, a manual counter, one box of 2″ x 3″ microscope clear glass slides, stainless-steel forceps, and a box of ten pre-counted Millipore® Aerosolve Monitors. (See opposite page PRE-COUNTED MEMBRANE FILTERS for details.) Also included is a copy of ASTM F63-25T, the Millipore Manual ADM-30 "Detection and Analysis of Contamination", and an operating manual for the Cleanline air sampler.

®Millipore Filter Corp., Bedford, Mass.

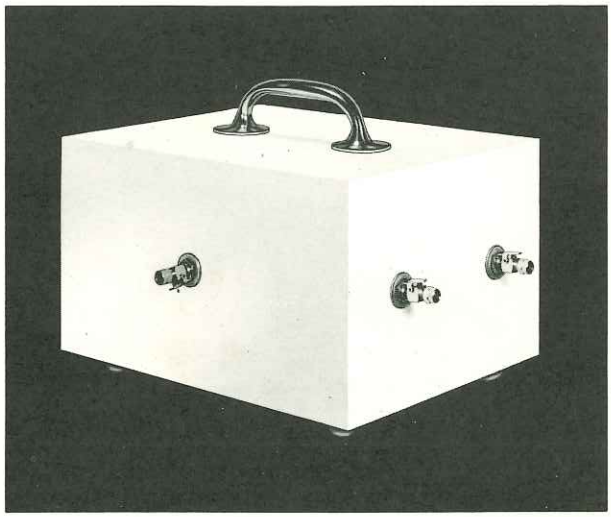


CLEANLINE* SMOKE GENERATOR

The CEEC smoke generator is a low-cost but high quality, compact unit. It is designed for use by persons who construct or install their own cleanroom, and have to conduct tests for filter efficiency and possible leakage. It is also used for testing existing cleanrooms to detect any possible leakages in construction.

This smoke generator is particularly useful for testing of laminar-flow walls or work stations.

Dense, very small particle-size, non-toxic smoke is generated in volume. It is simple and safe to operate. The only requirement is a standard 115-volts a-c power outlet. Smoke material refills can be stored indefinitely in a dry, cool place.



CLEANLINE AIR SAMPLER

The air sampler provides the least expensive and most accurate way to sample by the membrane filter method.

The compact, light-weight unit can easily be moved from one area to another for spot checking. All exposed parts are non-contaminating. Maintenance is negligible.

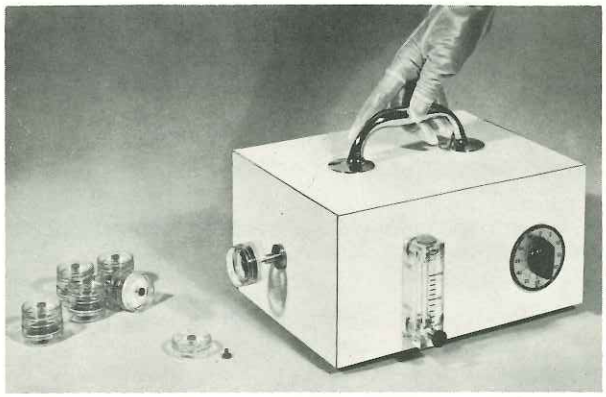
*Trademark

It is designed to be used inside a cleanroom. The exhaust of the sealed-in vacuum pump is filtered through a membrane filter so that it cannot contaminate the area being sampled. The unit need never be opened for any reason while in the cleanroom.

Pre-counted membrane filters (available from CEEC) greatly increase the accuracy of the counts and eliminate the deficiency of using average background counts. (see back-page for details).

The air sampler may also be used outside a cleanroom by connecting an extension tube to a monitor orifice located inside the cleanroom. In addition, this device can be used for sampling air in inconvenient or hard-to-reach areas simply by using an extension hose and adapter.

Any cleanroom worker can operate this unit. Sampling time and volume can be readily set or changed for various conditions. Sample size is easily determined by setting air flow and time switch.

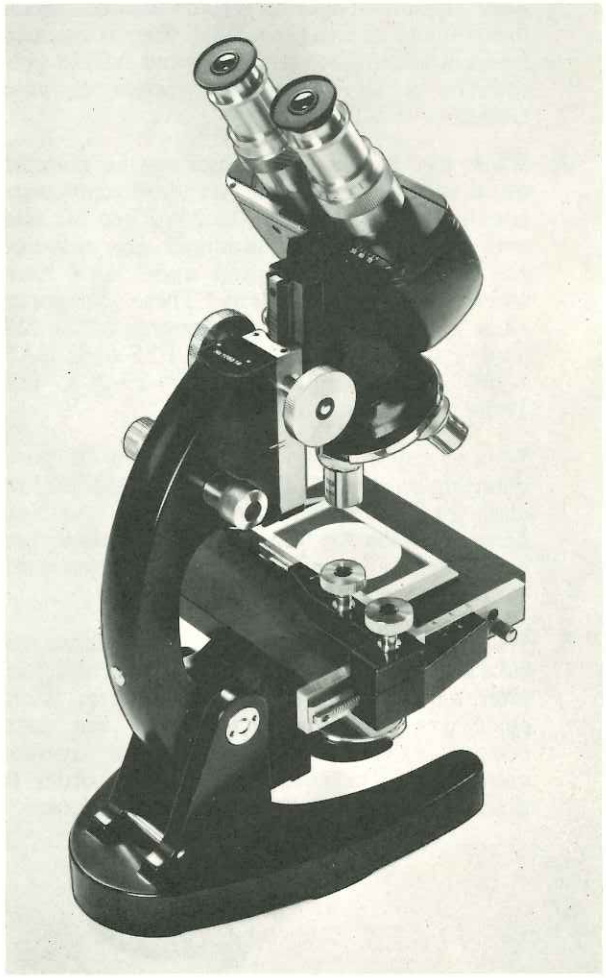


MICROSCOPE FOR PARTICLE COUNTING

This binocular microscope has been specifically adapted for the counting of membrane filters. A mechanical stage is large enough for the standard 2″ x 3″ glass slides that are necessary for 47-millimeter membrane filters. Two objective parfocal achromatic lenses, 4x and 10x, with 10x Kellner eyepieces produce 40x and 100x magnification as prescribed by approved applicable standards.

In addition, this microscope has a triple revolving nosepiece, divisible Abbe condenser (N.S. 1.4), an iris diaphragm, filter holder, plano-concave mirror, coarse and fine focusing, and a micrometer disc having 0.05 mm divisions over a 10-mm long scale on one of the Kellner eyepieces.

The light source is also available and should be ordered separately.



PRE-COUNTED MEMBRANE FILTERS

Greatest accuracy in air sampling — when performed in accordance with ASTM Tentative Method F25-63T — is obtained through the use of pre-counted membrane filters.

Millipore® Filter Corporation's Aerosolve "Field Monitor", 47-mm, with type AA, black, grid-marked filter is supplied by CEEC.

There are ten pre-counted monitors per box. Each monitor is numbered, and each box includes a record of the individually determined background-count of each filter.

SERVICES PROVIDED BY CEEC

COUNTING SERVICE

We provide complete services for membrane filter testing as follows:

1. Pre-counted membrane filters with individual background count listed.
2. Post-counting of membrane filters after use by you. This post-counting service includes membrane filters of *any* type. Each filter is counted by us in accordance with accepted ASTM procedures or in particle-size ranges of your choice.
3. While any particle-size range can be counted on a special basis, the standard categories counted are: 5 to 15, 15 to 25, 25 to 50, and over 50 microns. All monitors are provided and reports are submitted upon such basis unless otherwise required. These categories allow conformance to requirements of the following specifications: ASTM F25-63T, SAE ARP-743, Air Force T.O.-00-25-203, and Federal Standard No. 209.
4. Written reports are the conclusion of post-counting services. Such reports are mailed first class for New England, New York, and New Jersey, and via Air Mail elsewhere. Telephoned or Telegraphed reports with a written confirmation can be provided.
5. When pre-counted filters are post-counted, results are reported as net particles per cubic foot after adjustment for *actual* pre-count. When customers non-pre-counted filters are post-counted, the filter manufacturers *average* counts for background are used in order to arrive at the net particles per cubic foot.

Represented by:

CONTAMINATION STUDIES AND SPECIAL REPORTS

In addition to the above described services, CEEC is available for special studies of, and reports upon critical air contamination control problems. Such work is prepared to suit individual requirements and is performed on an individually arranged basis — the particular purpose, method, and result depending upon each customers requirements. All studies, of course, are fully documented in a written report of results. Some of the types of work performed to date include:

(a) scheduled precounting and postcounting of membrane filters on a contract basis for day-to-day quality control;

(b) study of an existing facility to determine cleanliness qualification of an assembly area for government bid;

(c) study and determination of cleanliness requirements for specification of Clean Room facilities;

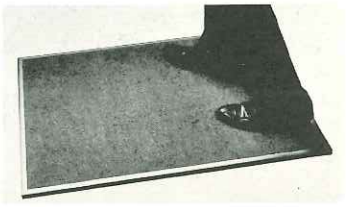
(d) study and recommendations for upgrading existing Clean Rooms to meet new requirements.

We solicit your inquiry with details concerning your particular problem in this field.

OTHER PRODUCTS BY CEEC:

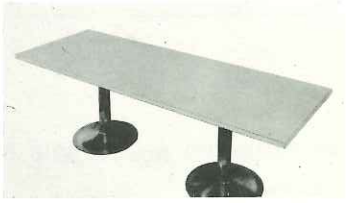
OPERATIONAL

Sticky • Mats
Tables
Chairs
Wipers
Fomat (Floor Mat)



CONSTRUCTION

Laminar Flow Tunnels
Pass-throughs
Laminar Flow Work Stations
Portable downflow clean spaces
HEPA Room Cleaner



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